APPENDIX B

STORMWATER MANAGEMENT
April 13, 2002

STORMWATER MANAGEMENT PLAN

Unless exempted in writing by the Conservation Commission or its Agent, each filing shall be accompanied by a stormwater management plan. A stormwater management plan should be comprised of site planning and design, implementation of structural and non-structural BMP's, and construction management techniques that mitigate the effects of stormwater runoff from a proposed development on surrounding areas. The Commission will review the applicant's stormwater management plan based on the objectives of the Bylaw, the WPA, and the standards prescribed in the DEP Stormwater Management Policy. The applicant should make every effort to integrate these same objectives into project planning and design at the earliest possible stage. As a minimum, the goals of the applicant's stormwater management plan should include improving stormwater runoff quality, mitigating stormwater quantity increases as well as stormwater recharge decreases as a result of development.

The applicant should present the following documents to the Conservation Commission for review:

Stormwater Analysis

Erosion and Sedimentation Control Plan

STORMWATER ANALYSIS

The stormwater management plan should include a hydrologic and hydraulic analysis of the project site. The analysis should include a study of the pre- and post-development site conditions in terms of site hydrology, stormwater flow patterns, groundwater recharge, proposed stormwater control system hydraulics, as well as other items referred to in the Bylaw, the WPA, the DEP Stormwater Management Policy, and/or that deemed necessary by the Commission. The analysis should be prepared by a Massachusetts registered professional engineer and should convey all information necessary to enable the Commission or its Agent to determine whether or not the stormwater management plan satisfies the criteria listed above.

Hydrologic calculations should be performed using either the Rational Method (for estimating peak runoff **only**) or the SCS methodology (TR-20 or TR-55). Rainfall amounts and/or intensities and all other factors necessary for hydrologic calculations should be determined based on criteria listed in the WPA. When necessary data is not provided in the WPA, rainfall amounts and/or intensities for the specific project area, as well as all other factors required for hydrologic calculations should be based on standard accepted engineering practice for the method used. In all cases, the sources of all data used in hydrologic calculations should be referenced in the stormwater analysis. All assumptions made in lieu of referenced data should be described and substantiated in the analysis.

Hydraulic calculations should be based on standard accepted engineering methods. All methods,

coefficients and assumptions should be referenced in the analysis.

SUGGESTED STORMWATER ANALYSIS REPORT FORMAT

The report format below is intended as a guide and may be modified as necessary to suit the specific requirements of the project as determined by the Commission or its Agent. The use of the general format listed below will assist the Commission and/or its Agent in reviewing the stormwater analysis in a timely and productive manner.

A. INTRODUCTION / PROJECT DESCRIPTION

Include a description of the following:

existing conditions including, but not limited to, site topography, site hydrology and stormwater flow patterns, soil types, cover conditions, and groundwater conditions;

proposed work and its anticipated effect on stormwater runoff, groundwater recharge and stormwater flow patterns;

proposed stormwater control systems including all BMP's.

B. METHODOLOGY / PROCEDURE

Include a description of the following:

objectives and points of interest examined in the analysis;

calculation **methodologies** and their specific applications in the analysis;

calculation **procedure** and all assumptions used in the calculations.

C. RESULTS / SUMMARY

Provide a clear and concise table of the calculation results as they relate to the objectives of the analysis.

Summarize the effectiveness of the proposed stormwater mitigation systems and how the stormwater management plan for the site relates to the applicable standards and goals of the DEP Stormwater Management Policy and the interests of the WPA and the Bylaw.

D. TECHNICAL APPENDIX

Provide copies of all figures, tables, and other applicable information including, but not limited to, USGS topographic information of watershed area, on-site drainage zone maps for pre- and post-development conditions, soil map, and other information necessary to provide a basis for all assumptions used in the calculations.

Provide data sheets for all calculations pertaining to BMP sizing, required treatment volumes, required recharge volumes, and TSS removal rates.

Provide data sheets for all other hydrologic and hydraulic calculations used in the analysis.

EROSION AND SEDIMENTATION CONTROL PLAN

The Erosion and Sedimentation Control Plan (ESCP) provides the developer and/or the contractor with erosion prevention information and BMP's to be used during construction to prevent the generation and transport of products of erosion. The ESCP should be designed with sufficient flexibility to allow the contractor to modify the suggested erosion control methods as necessary to suit seasonal, atmospheric and site specific conditions. Construction methods and a system of operations should be delineated and incorporated into the construction documents prepared by the applicant.

Aspects of construction that should be addressed in the ESCP include, but are not limited to, site clearing, grubbing and stripping, grading, maintenance of disturbed surfaces, loaming and seeding, stormwater collection system installation, completion of paved areas, and stabilization of disturbed surfaces. In addition to the construction methods listed above, the ESCP should address other construction site management issues including methods for equipment and vehicle maintenance, sediment tracking prevention, material storage and use, waste disposal, and control of non-stormwater discharges. All items should be addressed in terms of their potential impact on adjacent resource areas.

The project proponent should develop a construction sequence that will minimize the generation and transport of products of erosion. The construction methods described in the ESCP should be considered an integral part of each stage of construction.